

Application No. 10/711,888
Technology Center 1775
Amendment dated January 24, 2007
Reply to Office Action dated August 29, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently amended): An airfoil of a rotating component of a turbomachine, the airfoil having a coating system comprising:

an underlayer overlying ~~a metallic coating on~~ a surface of the airfoil, the underlayer having a composition ~~metallic coating~~ comprising metallic particles dispersed in a matrix, the matrix having a composition selected from the group consisting of metals, intermetallics, and mixtures thereof, ~~a metallic and/or intermetallic composition,~~ at least some of the metallic particles being more ductile than the matrix and having a composition ~~having compositions~~ containing silver and optionally tin; and

an overlayer ~~a ceramic coating~~ overlying the underlayer, the overlayer having a ceramic composition; ~~metallic coating;~~

wherein the underlayer ~~metallic coating~~ is sufficiently thick to damp vibration in the airfoil.

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Claim 2 (Currently amended): The airfoil according to claim 1, wherein the composition of the matrix consists essentially of chromium and ~~chromium-based~~ intermetallic phases of ~~formed by interaction between~~ chromium and at least one of silver and tin. ~~tin in the metallic coating.~~

Claim 3 (Currently amended): The airfoil according to claim 1, wherein each of the metallic particles has a composition selected ~~have~~ ~~compositions chosen~~ from the group consisting of alloys of silver, SnAg, and SnTiAg.

Claim 4 (Currently amended): The airfoil according to claim 1, wherein the underlayer and the metallic particles thereof and the matrix thereof ~~are~~ ~~metallic coating is~~ substantially free of tin.

Claim 5 (Currently amended): The airfoil according to claim 1, wherein the composition of the underlayer ~~metallic coating~~ further comprises oxides selected ~~chosen~~ from the group consisting of oxides ~~formed by~~ ~~oxidation~~ of elements of the metallic particles, oxides ~~formed by oxidation~~ of elements ~~the metallic composition~~ of the matrix, and the composition of the overlayer. ~~oxides from the ceramic coating.~~

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Claim 6 (Currently amended): The airfoil according to claim 1,
wherein the metallic particles have nominal dimensions of less than one
millimeter. ~~micrometer.~~

Claim 7 (Original): The airfoil according to claim 6, wherein at least
some of the metallic particles have nominal dimensions of less than one
micrometer.

Claim 8 (Currently amended): The airfoil according to claim 1,
wherein the composition of the overlayer comprises ~~ceramic coating has a~~
~~composition comprising~~ magnesia.

Claim 9 (Currently amended): The airfoil according to claim 1,
wherein a compositionally graded region is present between the underlayer
~~metallic coating~~ and the overlayer and comprises a mixture of the
compositions of the underlayer and the overlayer. ~~ceramic coating that~~
~~contains material of the metallic coating and material of the ceramic coating.~~

Claim 10 (Currently amended): The airfoil according to claim 1,
wherein the underlayer ~~metallic coating~~ and the overlayer ~~ceramic coating~~

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are substantially discrete layers that contact each other at ~~separated by~~ a distinct interface.

Claim 11 (Currently amended): The airfoil according to claim 1, further comprising a metallic bond coat between and contacting ~~wherein~~ the surface of the airfoil and the underlayer to promote ~~on which the metallic coating lies is defined by a metallic bond coat that promotes~~ adhesion of the underlayer ~~metallic coating~~ to the airfoil.

Claim 12 (Currently amended): The airfoil according to claim 11, ~~claim 10~~, wherein the metallic bond coat is predominantly hafnium, silver, or a mixture thereof.

Claim 13 (Currently amended): A gas turbine engine blade formed of a titanium alloy and having a coating system comprising:

an underlayer overlying ~~a metallic coating on~~ a surface of the blade, the underlayer having a composition ~~metallic coating~~ comprising metallic particles dispersed in a matrix, the matrix having a composition selected from the group consisting of metals, intermetallics, and mixtures thereof, ~~a metallic and/or intermetallic composition~~, at least some of the metallic particles having

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nominal dimensions of less than one micrometer, each of the metallic particles
having a composition ~~compositions~~ containing silver, the matrix having a
composition consisting essentially of chromium and chromium-based
intermetallics; ~~intermetallic~~; and
an overlayer ~~a ceramic coating~~ overlying ~~on a surface of the~~
underlayer, the overlayer having a ceramic composition; ~~metallic coating~~;
wherein the underlayer ~~metallic coating~~ is sufficiently thick to damp
vibration in the blade.

Claim 14 (Currently amended): The gas turbine engine blade
according to claim 13, wherein the composition of the metallic particles is
selected ~~the metallic particles have compositions chosen~~ from the group
consisting of alloys of silver, SnAg, and SnTiAg.

Claim 15 (Currently amended): The gas turbine engine blade
according to claim 13, wherein the underlayer and the metallic particles thereof
and the matrix thereof are ~~metallic coating is~~ substantially free of tin.

Claim 16 (Currently amended): The gas turbine engine blade
according to claim 13, wherein the composition of the underlayer ~~metallic~~

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~~coating~~ further comprises oxides selected ~~chosen~~ from the group consisting of oxides ~~formed by oxidation~~ of elements of the metallic particles, oxides ~~formed by oxidation~~ of elements ~~the metallic composition~~ of the matrix, and the composition of the overlayer. ~~oxides from the ceramic coating.~~

Claim 17 (Original): The gas turbine engine blade according to claim 13, wherein all of the metallic particles have nominal dimensions of less than one micrometer.

Claim 18 (Currently amended): The gas turbine engine blade according to claim 13, wherein the composition of the overlayer ~~ceramic coating~~ consists essentially of magnesia.

Claim 19 (Currently amended): The gas turbine engine blade according to claim 13, wherein a compositionally graded region is present between the underlayer ~~metallic coating~~ and the overlayer and comprises a mixture of the compositions of the underlayer and the overlayer. ~~ceramic coating that contains material of the metallic coating and material of the ceramic coating.~~

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Claim 20 (Currently amended): The gas turbine engine blade according to claim 13, wherein the underlayer ~~metallic coating~~ and the overlayer ~~ceramic coating~~ are substantially discrete layers that contact each other at ~~separated by~~ a distinct interface.

Claim 21 (Currently amended): The gas turbine engine blade according to claim 13, further comprising a metallic bond coat between and contacting ~~wherein~~ the surface of the blade and the underlayer, the bond coat consisting ~~on which the metallic coating lies is defined by a metallic bond coat that consists~~ essentially of hafnium, optionally silver, and up to 25 weight percent of constituents that diffused from the underlayer ~~metallic coating~~ into the bond coat, the bond coat promoting adhesion of the underlayer ~~metallic coating~~ to the blade.

Claims 22 through 36 (Canceled)